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WEEKLY STATION REPORTS

OF THE OFFICE OF

DRY LAND AGRICULTURE INVESTIGATIONS

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE.

APRIL 14, 1917.

REPORT FOR PERIOD ENDING, APRIL 7,1917.

Akron, Report for week ending April, 7:

The past week has been cold and windy and only four days were favorable for field work. Spring wheat and oats were sown on the rotations Thursday and Friday. The soil is in good condition to work but the surface is so dry that there has been considerable blowing. Winter wheat is starting very slowly and is not up enough to show the stand. There has been considerable winter killing and a large number of fields in the vicinity of the Station are being reseeded to spring wheat.

Maximum temperature for the week was 65 on Thursady, minimum 16 on Wednesday. Precipitation 0.05 in. in the form of snow.

Amarillo, Report for week ending March 10:

Spring opens about as last year-dry with lots of wind and dust. There has been considerable of soil blowing on the station. The last year fallow and row crop plats of the D. L. A. project have especially been swept over the surface. The winter crops came thru with good stands but two or three winter wheat plats in line with plats from which soil blowing was bad, were cut considerably. They are not beyond recovery if rain comes soon so that drouth doesn't finish the job. The wheat on plat D of the C. C. series suffered worst in this respect.

The surface 3 or 4 inches of soil are rather dry but below this there appears to be a fair supply of moisture. The small grain varieties are being seeded on the station at present, and the seeding on the D. L. A. plats will be done early next week weather permitting. The early Spring tillage work on these plats was done the fore part of this week.

Maximum temperature since Jan. 1 was 83 on the 25th of Feb. and the minimum was 2 above on March 2, precipitation since the first of the year was 13" in Jan., .06" in Feb. and .03 so far in March. There has been no precipitation of any importance since the middle of last October-the whole amount since then to date being only 1.20". Since the middle of Feb. or during the past month, there have been several days of very high winds, averaging for the day from 13 to 17 miles per hour. From this it may be seen that typical Plains weather and resulting conditions prevail here at present.

Amarillo, Report for week ending March 17:

Weather continues dry and windy. Maximum temperature for week was [illegible] on the 15th and minimum 14 on the 16th. Chilly nights and rather cold days as a rule have prevailed. Wind velocity has averaged 11.5 miles per hour. Precipitation for week was a trace of snow on the morning of the 13th. Since the first of January there has been an average wind velocity of 9.1 miles per hour-the wind movement for both January and February being abnormally high.

Seeding of the Spring grains on the D. L. A. plats was done by the middle of the week. The ground is in much finer shape to work this Spring than was the case last Spring when the hard baked condition of the soil made it almost impossible to work it into a proper seed bed condition. There is slightly more moisture in the first foot of soil than there was last season at this time, but below this there is less moisture than there was last year. In fact there is available moisture only in the first 2 feet of soil this year, except in the fallow plats, and success with crops will to a large extent depend on rainfall of the season rather than on what is now stored in the ground. There has been 1 1/5" of precipitation here in the past 5 months, or since the middle of last October.

Amarillo, Report for week ending March 24:

Continued drouth with high winds and dust prevailing. As a rule the thermometer runs up into the seventies during the day and down around freezing at night, so that growing conditions are not ideal to date. Maximum temperature for the week was 78 on the 22d, and minimum 17 on the 18th. Average wind velocity was 9.4 miles. No precipitation. Soil sampling was begun during the week. In the Spring wheat plats A to D there appears to have been a fairly consistent loss of moisture in all 6 feet varying from 1 to 3½% for each foot, since sampling last fall on Nov.1st. Some bunches of volunteer wheat had to be hoed out of the winter wheat plats. If rain and more favorable weather is not forthcoming soon it is feared that plat D, which we mentioned in a previous report as having suffered from blowing soil, will not recover. The Spring grains seeded 10 days ago are not showing up

Amarillo, Reportfor week ending March 24, (continued)

and probably will make little headway at germinating until after rain.

A move is on foot now to ship several thousand head of Holstein dairy stock into the Panhandle country from Wisconsin. Plans are also being matured for the establishing of a large creamery here at Amarillo. Now that the chances of getting rich quick at wheat raising seem less promising than they did a year or two ago the enthusiasm is taking another tack.

Amarillo, Report for week ending March 31:

Weather continues the same-extremes of temperature, high winds and drouth prevailing. Maximum temperature for the week was 86 on the 30th and minimum 18 on the 27th. Average hourly wind was 8.9 miles per hour. The daily range of temperatures have varied from 26 to 45 degrees. No rain or snow.

Winter wheat and rye have made very little headway the past 3 weeks. Spring grains seeded the middle of the month are up in patches over the plats, there being fair stands on most plats of the Spring wheat and barley. Oats are not up much and the field peas not at all. In places the seed is lying in the ground as dry as the day it was put in. This is true generally for seeding done on the station this Spring as well as with the D. L. A. plats.

During the week the weather instruments have been put in commission for the season's readings. It was found necessary to solder a number of places in the bottoms of the evaporation tanks where rust spots had eaten thru. The inside of the tanks was painted over with a cement paint especially prepared for such purpose.

Summary of weather condition so far for the season has pretty well been made in previous reports. For Jan. Feb. and Mar., the 19 year normal of rainfall as established by the station records is 1.48", while this season the precipitation for this period has been only .21". Average wind velocity has been 9.1 miles for each of the 3 past months, being abnormally high for Jan. and Feb. Temperature has ranged all the way from 2 degrees above on Mar. 2d to 86 on the 30th.

Amarillo, Report for week ending April 7:

Weather continues the same-dry, windy, dusty. The past week has been one of almost continuous dust storm. Field work is practically at a standstill. The Spring grain crops are up with indifferent stands on all but a few plats, which because of stubble or ridging, held some of the snow that fell on March 3d. Oats are not up as well as wheat and barley.

Maximum temperature was 81 on the 6th and minimum 26 on the 2d. Average hourly wind was 11.7 miles. Evaporation none. Mr. Ellery Chilcott, Field Assistant, and Mr. Pearson of the Forestry service at Flagstaff, Arizona were visitors at the station on the 6th.

Archer, Report for week ending April 7:

Considerable soil-blowing has taken place due to the numerous high winds and the very loose condition of the soil. The plats of the rotations are becoming very uneven in topography because of the soil blowing from unprotected plats into stubble plats. The winter wheat on the smooth plats has been damaged considerably, but reseeding may not be necessary, as the slight spring growth shows that there may be a half stand. No noticeable growth has taken place during the past week.

There is still some frost in the ground.

Plats B of rotations 68, 71, 72 and 346 were manured April 2d. The evaporation tank was filled April 2.

Weather record:

Maximum temperature,	61 - 6th.	
Minimum "	8 - 4th.	
Precipitation	0.20 - 4th & 7th	(snow, drifted)
Wind Velocity, ave.	13.5	

Ardmore, Report for week ending April 7:

Maximum temperature for the week 48; minimum 16; no precipitation. The total precipitation for the month of March was 1.62 inches- the greatest precipitation for the month of March since this station has been in operation. The snow and rainfall during the fall and winter months, however, was exceptionally light, and there is very little available moisture in the ground.

Present prospects are that winter wheat and winter rye will be almost a total failure.

Work in the fields was started on the 3rd and has continued without interruption. Considerable spring wheat and oats have been seeded and all plats will be seeded next Monday.

Material for the construction of buildings under the supervision of the Dairy Division and the Bureau of Animal Industry has been delivered and active construction work is in progress. Lease for 800 acres of land has been executed and the entire place is being fenced; including cross fences a total of 14 miles of fence is required.

Bellefourche, Report for week ending April 7:

The past winter was one of exceptional severity. For a period of approximately five months the ground was covered with snow so that stock could find no feed on the range. As a result, practically all farmers have exhausted their supply of feed. The loss of stock caused by the shortage of feed was greater than usual, in spite of the fact that most stockmen entered the winter with a greater amount of feed than usual on hand.

The weather conditions for the first week in April have been excellent. The snow disappeared during the first part of the week and during the latter part of the week all discing, plowing, and harrowing, preparatory to sowing spring grains, was completed.

The soil contains sufficient moisture in the first foot to germinate the grain and to supply it for its early growth. No soil samples have been taken as yet.

Maximum for week, 62. Minimum 19, Precipitation .27.

Big Springs, Report for week ending April :

The weather conditions remain dry, with only .31 of an inch of precipitation since Jan. 1st. Very little farm work has been done on the station up to date this spring on account of the drouth. Winter wheat and rye are starting to head and will be very short unless rain comes soon. Four-tenths of an acre of alfalfa planted in 36 in. rows last April is growing rapidly and is 6 to 10 inches high, but not much of a crop will be produced under the existing conditions. March was a very windy, with several cool periods. On the 4th of the month the temperature dropped to 4 above, and to 25 above on the 26th. These low temperatures killed the peach crop in this section,- the trees being out in bloom at the time.

The climatic records were started on March 1st, and a full set of soil samples were taken on winter wheat. Several different varieties of fruit trees and grapes were planted in the experimental orchard and vineyard in March. We now have over 75 different varieties of fruit planted on the Station.

Maximum temperature for the past week, 87, minimum 28, wind velocity 10.8 miles, evaporation 2.6 in., precipitation 0.

Colby, Report for week ending, March 34:

This has been another week of dry weather. The long winter drouth is still unbroken. While there have been three warm days heavy freezes have been frequent enough to keep things from starting so that wheat is not suffering as badly as if it were growing. The ground was prepared Monday and Tuesday and the seeding done on Tuesday on all the spring small grain plats and the plat of peas for green manure. The disked corn ground and spring plowed plats have sufficient moisture near the surface to bring the grain up, I believe, but on the fall plowed and summer tilled plats there is practically no moisture in the furrow slice. All the plats worked down into a much better seed bed than was possible last year, and with any rain at all much better stands should be secured than last year. The last two days have been windy and dusty.

Colby, Report for week ending April 7:

The drouth still continues. There have been snow flurries and a shower but no moisture has been added to the soil. The prospects for a wheat crop are growing smaller every day. At best there will be only a few fields with even fair stands. The past week has been warmer than any last month so that growth has begun to some extent. Where there was moisture the spring grains have germinated but none are up yet. The winter wheat has started turning green in places. In stubble it seems to be in good condition as yet. Alfalfa is beginning to grow. Weather for the week:-Maximum temperature 70, minimum 17, precipitation .04".

Dalhart, Report for the week ending April 7:

The past winter has been very dry; since October 1st 1916, the total precipitation has been but .86 of one inch. This precipitation came on 18 different dates and was not of any benefit whatever to the soil, or winter grain. Winter wheat seeded on September 30th did not germinate and the winter rye seeded on the same date has germinated only a small per cent. Some winter rye seeded last fall on land previously fallowed has germinated well but has made very little growth and is in great danger of being destroyed by soil blowing. The small grains were seeded on March 20th, and 21st, but have not germinated. Soil samples that have been taken indicate that there is less moisture in the soil than there has been at any time since 1913. Native grasses which were green at this time last year show no signs of any growth. The lowest temperature recorded during the winter was-10 on December 21st, on the 20th of December it was -9, the next lowest temperature recorded was -1 on Feb. 2d. The weather during February was very favorable for field work but March has been very windy with considerable soil blowing.

Most of the spring plowing has been finished but no attempt has been made to prepare the land for seeding and it is doubtful if much can be accomplished along this line until we get some moisture.

Dickinson, Report for week ending April 7:

Altho our winter snows remained on the land later than usual the break in the continuous cold has been so complete that we now anticipate about as early seeding this year for the surrounding country as we could normally expect. Considerable work was done in plowed fields on the uplands during the week but no seeding as yet has been reported. A light snow on the 6 set work back about two days.

It is perhaps a little early to report on the winter wheat conditions. However casual observations seem to show a higher per cent of stand coming thru the winter than usual.

Large snow drifts in the station Bull pine plantation have done considerable either in tearing off limbs or breaking some of the smaller trees off near the ground. There is still from two to three feet of snow in the wind breaks.

Maximum temperature for the week 58, minimum 16. Total precipitation for the week .25 inches.

Edgeley, Report for week ending April 7:

Spring appears to open up exceptionally early here this year. With the exception of yesterday afternoon, the weather has been quite warm and fair throughout the week. There was very little snow on the fields, and in many places field work was possible the first part of the week. Seeding has become quite general during the last three days.

Yesterday afternoon a light steady rain began, turning to snow during the night, the ground being quite generally covered. This snow is melting rapidly today, but field operations are impossible.

No field work has been done on the station yet. The plats will probably not be in shape for work to be done on them until the middle of next week. There is still a large amount of snow in drifts on the station grounds near the trees and hedges. The snow drifted worse during the past winter than at any previous time since the station was started and as the snow melts much damage is being done to the young groves and the orchards, both on the station and at other places.

Maximum temperature	53'	
Minimum "	20'	below freezing every night
Precipitation	.20 inch	

Garden City, Report for week ending March 31:

We are still without moisture for the seeding of small grains, and the acreage devoted to barley and oats will be greatly lessened as a result. There is some field work being done but most of the farmers on unirrigated land are waiting for rain. Winter wheat on dry land, and most of it on irrigated land is dead and this will mean a greatly increased acreage planted to various sorghum crops. Much of the wheat land has considerable moisture at a depth of 6 to 8 inches below the surface, but the cold weather in early fall and the lack of precipitation throughout the winter prevented the plants from establishing a sufficiently deep root system to survive the winter.

The winter wheat plats will all be seeded to spring wheat. Seeding of oats, barley, and spring wheat on the dry land plats is being delayed on account of the dry condition of the soil. Spring plowing on the small grain plats was completed during the week, but on a few of the plats the soil was so hard that it was difficult to perform a good job. The "A" plats of the continuous cropping series were somewhat the worst in this respect. The the soil was dry on plat "G", continuous cropping series, spring wheat, was remarkably loose and easy to plow.

The weather station was put in order during the week for the taking of all records beginning April 1.

Their has been considerable soil blowing this spring, but so far we have not been bothered on the station.

The writer is looking after the station during the temporary absence of Supt. Knapp.

Garden City, Report for week ending April 7:

The drought still continues unbroken, and field work is practically at a standstill. No seeding will be done until rain comes, as there is not enough moisture in the surface soil of any of the plats to germinate seed. Most of the past week has been spent in the office working up data and doing other office work.

The wind blows very hard nearly every day; and where the soil, has not been properly handled there is lots of soil blowing taking place.

Maximum temperature for week			74
Minimum	"	"	24
Evaporation	"	"	1.281"
Precipitation	"	"	.03"

Havre, Report for week ending March 31:

The past winter in this part of Montana has not been as extremely severe at any one time as it was a year ago. There has been an exceptionally large amount of snow for this section and the cold weather has been very steady and long drawn-out. Many of the old residents of this part state that it is one of the worst winters they have ever seen.

The snow has not entirely gone yet. A year ago we began plowing sod the 15th of March. Under the most favorable conditions we will not be in the field this year before the 7th or 8th of April.

So far as can be noted the winter grain seem to have survived the winter in good condition, although no growth has started yet this spring.

Havre, Report for week ending April 7:

Maximum temperature 57 on the 4th, minimum 25 with the temperature below freezing all but one night. Precipitation .07

The month of March has been below the normal in both precipitation and temperature.

The most of the snow has now disappeared, and the frost has gone from the level land. We started breaking sod on the 7th. This is more than three weeks later than this work was started last season.

As growth has not started yet the amount of winter killing on winter grains can be ascertained. The most of the Kharkov seems at this time to be alive.

Mr. Moomaw of the Office of Forage Crop Investigation arrived during the week to take charge of the work of that office.

Hays, Report for week ending April 7:

Weather during the past week has not been unlike that which has prevailed for several weeks, very dry and extremely windy, with only occassionally a quiet pleasant to break the monotony. Changeable temperatures have been common. Maximum temperature for the week, 75, minimum, 17. Total precipitation .05 on the 4th. Frost the 2d.

The past nine months is reported to be the driest consecutive nine months on record.

Present prospects for a crop are very discouraging. Wheat on the Experiment Station averages better than the average on farms throughout this section, but it is suffering extremely.

Hays, Report for week ending April 7: (continued)

There are thousands of acres here where it looks as if there cannot be more than 30% alive and but very few where there is as much as 50% still green. Blowing along with the drouth has damaged thousands of acres.

It is one of the gloomiest springs for the farmers for many years. The soil is in no condition to warrant seeding of spring small grains. Their greatest hopes now is that there is still time in which to receive rain necessary for the growth of row crops.

As for spring work on the Dry Land Project, no seeding has yet been made as it is thought unwise so to do under present conditions. The project has suffered slight damages from blowing caused by drifting soil from an adjoining neighbor's field. The fence separating our project from that farm is in places half buried with soil drifted from said farm. The fence, however, will be unearthed for most part, with teams and road grader but not until the present season of Real Estate exchanging has closed. It is useless to act previous to that time.

In order to prevent blowing on the plats and to minimize the amount of damage being caused by foreign soil traveling our way, we have opened lister furrows through five link alleys between wheat plats, listed roads, borders; Have roughly furrowed with cultivators all unseeded fall plowed plats, and have plowed and left rough all plats which are to be spring plowed. We consider it absolutely necessary to handle the plats in this way as long as the conditions do not change.

Soil moisture determinations have been made on 37 plats of winter wheat, and samples for nitrate determinations were taken on 8 plats of winter wheat.

The Fourth Annual Round-up was held at the Ft. Hays Experiment Station April 5th. A good program was carried out, and the conservative number of visitors based for most part on counts is 1500. Fortunately, Providence or good luck provided us with a beautiful day for the occasion. It was the only good day of the week. A free lunch featuring station produced beef and pork was served to all at noon.

Hettinger, Report for week ending April 7:

The weather has been good and the first work in the field reported was done on the 6th. Some snow remains in the hollows. The frost has not gone out sufficiently to plow as yet. Most of the winter precipitation has been stored as the runoff seems slight.

The deficit appropriation passed by both Houses was vetoed by the Governor due to lack of state funds. Thus we are left with a debt to be erased.

Huntley, Report for week ending April 7:

Frequent light snows and showers have kept the ground too wet for field work to date. Winter wheat and rye show considerable damage by smothering the young plants. Alfalfa and sweet clover show slight winter injury and brome grass none at all. The last is making a vigorous growth.

Mr. C. V. Singleton, a graduate of the Missouri Agricultural College arrived at the station March 15 and will have charge of the hog work for the Bureau of Animal Industry.

Temperature for the week; Max. 56, Min. 23, Precip. 22"

Lawton, Report for week ending April 7:

A very dry and windy spring has obtained throughout this part of the state. With the exception of one rain amounting to 1.47" on the 13th of March there has not been any moisture to enter the subsoil since the middle of last October and that was only a limited amount. The rain which occurred on the 13 was torrential in character, falling in about 30 minutes accompanied by a high wind. The total amount that fell seemed to have varied widely in different localities. There was a tremendous amount of runoff which resulted in a fairly good supply of stock water. The lack of such water in the pastures and for domestic use has been a serious difficulty with a large per cent of the farmers since last July.

Much fall and winter plowing has been done this year and it has been very difficult to prepare seed beds that were at all suitable. Even where spring plowing was done the moisture was so rapidly taken up by the heavy winds that satisfactory farming operations of any kind have been difficult. The above mentioned rain did, however, permit the preparation of a fairly good seed bed for corn but the surface moisture was rapidly sucked up by the winds. This together with frequent cold spells has resulted in slow germination of corn.

Ornamental shrubs and trees of all kinds have been very backward about showing any signs of spring. In general I would say that they leafed out about two weeks later than they did last year.

Spring wheat, oats and barley were seeded on the rotation plats Feb. 17th and pretty good stands were in evidence on the 8th of March. Growth since that has been slow and backward. Corn was planted March 24th and is just now peeping thru the ground. The ground dried out rapidly since planting and it is a little doubtfull whether or not a full stand will obtain. However, nearly all of it seems to have sprouted.

Lawton, Report for week ending April 7, (continued)

Alfalfa and sweet clover that was seeded last fall was reseeded on March 22nd, with a seeder attachment on the grain drill. At the present time it is just emerging and the plants are in a critical stage. Sweet clover seeded with winter wheat on Rot. 153 cannot germinate until rain falls. Crimson clover on Rot. 254 was a total failure.

Winter wheat has made fairly good growth and is still looking prettywell, however, it has but a limited amount of moisture in the subsoil to fall back on. Winter wheat at present is showing a decided response to the use of barnyard manure. M. C. H. which was double listed and manured has made a ranker growth and has a better color than M. C. C. which was previously summertilled. Wheat on rotation 275, previously summertilled and topdressed with manure has a better appearance than wheat on Rot. 274, previously summertilled but not manured. All plats to be fallowed this year were plowed and disked on the 3d and6th of March. M. C. D. cotton, broom corn, sorghum, Milo, and kafir, and Feterita were disked 4/7th as they were getting rather weedy.

In the rate and date of seeding with winter oats, winter barley, and winter wheat, the intermediate dates with oats and barley are the only ones that now show any prospects of making a yield of any kind.

The first date of seeding with cow peas and soy beans was made on April 2, and the rate and date work with cotton was started on the 5th.

The station force has been very busy all spring making various improvements around the buildings. The teamster's cottage has been completed and the teamster moved in on the 4th of April. A concrete floor has been laid over about two thirds of the implement shed and the second story floor is just about completed. A concrete manure pit 12' x 32' x 3½' has also been built. The installation of the light plant is nearly complete but further work is briefly delayed while waiting for engine repairs. The lawns around the residence and office buildings are now being set with bermuda roots.

The precipitation for the year is as follows;
Jan.---0.30", Feb.---0.57", March---1.74", Total---2.61"

	Max. Temp.	Min. Temp.
Jan.	78	11
Feb.	93	3
March	90	6

The wind velocity has averaged over 20 miles per hour during the day time several times in March and the first week in April.

Mandan, Report for week ending April 7:

Precipitation of .32" on the fifth in the form of snow has all melted and soaked into the soil. The frost is going out rapidly. Some disking, including a few plats, was done during the week, though the soil was usually frozen until the middle of the forenoon or later.

Mail service via the Northern Pacific has been discontinued for a few days due to the flooded condition of the Missouri River.

North Platte, Report for week ending, April 7:

The winter has been dry in so far as accumulating moisture in the soil is concerned. Since January 1, the North Platte Weather Bureau reports .83 inch excess precipitation above normal. This has for the most part been in the form of snow which drifted badly and was of little benefit to the fields.

Winter wheat on the D. L. A. plats is practically all dead and has been reseeded to spring wheat. On a ten acre field on the bench fallowed in 1916 there is about 40% of a stand left. Considerable soil blowing is taking place.

Spring work in the fields began at about the usual time. All small grains on the D. L. A. plats was seeded during the week. The first seeding in the dates of seeding small grain tests was made March 27.

The pump is being installed in the new irrigation well on the station and will be ready to try out in a few days.

Scottsbluff, Report for week ending March 31:

The winter has been very dry, the total precipitation from November 1, 1916 to March 1, 1917 being .66 of an inch. Recent heavy snow falls, however, have made the soil sufficiently moist to insure germination of the small grains.

The winter wheat has been damaged considerably by wind. The stand on one plat, M. C. A., is entirely "wiped out." Winter wheat has also suffered slightly from winter killing.

The weather did not permit of field work until the latter part of the week, when all of the corn stubble and summer fallowed plats were spring tooth harrowed, to retard soil blowing.

Maximum temperature for the week 76, minimum 17, precipitation .02".

Mr. O. J. Grace visited the Station on the 28th and 29th.

Scottsbluff, Report for week ending April 7:

The weather during the week has been rather cold and dry. Slight soil blowing has occurred. The surface soil is drying out very rapidly and, unless rain is received, soil blowing will be quite serious in a remarkably short time.

All the spring wheat plats have been prepared for seeding and the wheat will be seeded Monday.

Weather records for the week:

Maximum temperature,	82 - 5th
Minimum "	15 - 1st
Precipitation	.02"

Average hourly wind velocity, 8.4 miles.

Sheridan, Report for week ending April 7:

Although most of the snow has gone except that in drifts, there is still frost in the ground. It is expected to start a team to plowing on the 9th., although it will probably be a day or two later before teams can begin working the last years breaking down preparatory to seeding. The month of March was spent in filling the coal bins, with coal hauled from town, setting up machinery and putting it in shape for spring work, cutting wood, cleaning up about the buildings as much as possible, etc.

The month of March was considerably colder, than is usual for that month, and about 4- or 16" of snow fell although we have no way of measuring it here at the present time.

The winter wheat seeded September 19, has just appeared. Apparently it was about to emerge when it was covered with snow last fall. Winter rye is also appearing.

Roads have been in terrible shape during the past two weeks and but one automobile has been able to get over the road to Sheridan in that time.

There has been a serious shortage of hay in this section this spring and hundreds of cattle have weakened and died because of it. Cows are beginning to calve and being a weakened condition there will be considerable more loss still.

Temperatures for the past week, Max. 52; min. 20; mean max. 46 mean min. [illegible].

Tucumcari. Report for week ending April 7:

Average hourly wind velocity for week 10.0 mi. per hour. Prevailing direction S. W. Max. temperature for week 80 degrees on both the 5th and 6th. Min. temperature 23 degrees on the 4th. Precipitation Trace on each the 1st and 2nd.

On the 5d the wind averaged 24.9 miles per hour from 8 A.M. till 5P.M. On the 6th the wind averaged 24.5 mi. per hour from 1 P.M. till 5 P.M. This is on the 2' anemometer. High winds have occured nearly every day during the week, during day-light hours.

Taking the winter as a whole it has been exceptionally windy and dry. Old timers say that it has been the worst they remember. Scarcely a farm in the county that has not been subjected to soil blowing. Even on the Plains, south of Tucumcari, where the soil is heavier and not so subject to blowing as is ours, it has blown so badly as to practically kill out the wheat. On the experimental station practically all plats have blown more or less and all of the fall seeded grains were killed out by the close of January. Due to the continued drouth and wind, the spring grains have not been sown as yet but they will be seeded within a week whether or not rain comes, so as to at least have record of them.

The rainfall during the past fall and winter is given below compared with a twelve year average:

	October	November	December	January	Feb.	Mar.	Ap.
Average:	1.06	.95	.75	.32	.75	.57	1.94
1916-17	.78	.29	.32	.31	.11	.12	
Deficiency	.28	.66	.43	.01	.62	.45	---

For the entire year of 1916 we had a precipitation of 10.89 inches compared with an average of 16.21 inches for 12 years.

Soil moisture records for Spring Wheat C. C. Series show the following:

	Plat	Foot	4/26-13	4/6-14	4/5-15	3/15-16	4/2/1917	Wilt. Coef.
	1.		14.3	10.7	11.6	6.0	4.6	5.4
	2.		15.3	13.0	13.3	8.8	7.6	8.4
A	3.		9.6	9.1	12.7	8.9	7.7	9.9
	4.		8.3	10.6	13.0	12.7	8.5	11.4
	5.		10.8	9.9	11.3	11.7	8.6	11.1
	6.					13.4	10.0	10.9
	1.			10.6	11.9	8.8	4.8	6.0
	2.			12.6	13.8	12.5	11.3	8.5
B	3.			10.3	12.3	11.3	7.6	7.4
	4.			10.2	11.9	11.4	9.7	8.5
	5.			9.3	10.7	11.1	9.6	10.2
	6.					9,0	8.1	7.1

Tucumcari, Report for week ending April 7: (continued)

	Plat foot	4/26-13	4/6-14	4/5-15	3/15-16	4/2-17	Wil. Co.
	1.		10.7	10.7	9.0	7.3	7.1
	2.		12.6	12.8	11.8	8.6	8.2
C.	3.		12.1	11.6	13.1	8.2	10.0
	4.		12.6	13.4	12.8	8.9	10.2
	5.		11.1	12.2	12.6	10.2	9.8
	6.				12.1	8.2	8.0
	1.		9.9	12.7	6.9	8.3	6.8
	2.		13.5	13.7	8.2	10.2	7.8
D	3.		9.4	10.9	6.9	9.2	8.3
	4.		8.8	12.7	9.5	10.1	9.1
	5.		9.0	12.9	10.7	10.9	9.1
	6.				8.6	10.0	7.0

By referring to the above records it will be seen that except for Plat D, which was fallow 1916, in every case the moisture content of the soil is lower this year than for the closest date for any previous year since records were taken here. It will also be seen that the wilting coefficient is in most cases above the amount of moisture in the soil and that in other cases the percent of available moisture is very low.

On account of the very dry preceding year and on account of the exceptionally dry fall, winter, spring and the constant high winds which have occurred, prospects at present are none too bright for a good crop year.

In even the driest years, however, we have received enough rain during the mid-summer months to produce a fair yield of feed sorghums.

Due to our very long frost free period, average of 188 days, we are enabled to plant nearly any of our crops, except small grains, as late as the 1st of July, and still mature them. It is dry now but there are still two months before planting has to be done.

Williston, Report for week ending April 7:

Weather for the week had been generally warm and drying until the 6th instant, when a snow storm occurred, bringing with it .35" of moisture. On the 7th, the snow slowly thawed practically disappearing and soaking into the ground. Maximum temperature for the week 50, minimum 11. Evaporation tank frozen over every day but one.

Williston, Report for week ending April 7: (continued)

The season is about a week or ten days earlier than last year in this section. The Missouri River is breaking, and although very high, floods are not expected to do any considerable damage. Some dragging has been done on exposed fields in the locality, and spring work was started on the station on the 5th, to be resumed as soon as the present snow dries up. Field work will be general by the end of next week, weather conditions remaining favorable.

There is more fall plowing than usual, the moisture in the soil is above normal, and prospects for the beginning of a good season are encouraging. Although the winter was one of the most severe on record, stock is in good condition, and there is still much feed on hand in the country.

NOTE: The form 5 voucher was sent direct to the Office of Records, after being signed by the dealer. The voucher is in favor of Jim Parker, Tecumseh, Okla., and covers 6 plants; Oklahoma currents 75¢. If this material was secured by any Field Station of this office it is requested that the Field Station in question notify this office by return mail, and the voucher will be mailed to the station, for the superintendent's signature; and Mr. Cox of the office of records will be advised accordingly.

THE FOLLOWING MEMORANDUM WAS ISSUED BY THE SECRETARY OF AGRICULTURE

UNDER DATE OF MARCH 28, 1917
Memorandum No. 195.
Cooperation with Agricultural Colleges in Extension Work.

"Following the passage of the Cooperative Agricultural Extension Act of May 8, 1914, the Department entered into agreements with the State agricultural colleges receiving the benefits of the Act to conduct its extension work in cooperation with the colleges. It is therefore expected that all employees of the Department operating in the several States will cooperate cordially with these colleges in such work and will not do any extension work either individually or in connection with other State or local organizations without first consulting the Extension Director at the College or getting authority from the Department for such work".

WEEKLY STATION REPORTS

OF THE OFFICE OF

DRY LAND AGRICULTURE INVESTIGATIONS

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE.

APRIL 21, 1917.

REPORT FOR WEEK ENDING, APRIL 14, 1917

Akron, Report for week ending April 14:

The past week has been very cold and windy with very little precipitation. Winter wheat is starting very slowly and is not far enough along to show the stand. Grass is starting on the prairie but will not make much growth until we have some precipitation.

The wheat varieties were sown the first of the week. The oats and barley would have been sown but the last of the week was windy and threatening rain. The buffalo berry trees are in blossom, more than a month later than they were last year.

Maximum temperature for the week 80 on Monday, minimum 26, precipitation for the week 0.05 inches.

Amarillo, Report for week ending April 14:

Rain at last. After strong South and Scutheast wind Monday and Tuesday we got .28 inch rain Tuesday evening and .15 inch the following evening plus .09 last night making in all .52 inches for the week. While this has brought about a most welcome change in the weather and has revived crops temporarily, we shall need a good deal more very soon to put the ground in good growing condition. It is too soon yet to tell definitely to what extent seed that has lain unsprouted in the ground will now come up. Unless it responds very decidedly, reseeding may be necessary on a number of the plats.

On the advice of our Field Assistant, corn planting will be done about a month earlier this year than usual, provided sufficient rain comes in the meanwhile to put the ground in shape. Most of the work preliminary to planting on the plats was completed this week. Seed of various oil producing plants, like sunflowers, Perilla, Lallemantia, etc. has been received from the office of Drug and Poisonous Plant Investigations to be tried out here this season.

During the week a ditch has been graded in along the East side of the Dry Land project for the purpose of draining off water that tends to collect here after heavy rains. This is a condition that has needed correcting for some time and it is hoped that it has now been affected.

Maximum temperature for the week was 73 on the 9th, minimum 25 on the 8th. Average hourly wind 9 miles. Evaporation 1.376 in. Precipitation .52"

Archer, Report for week ending April 14:

No tillage work has been done on the rotations yet. Disking on the field of the Cereal Investigations shows the ground to be in fine shape for working and seeding. A few warm days this week have started the grass on the range, which is beginning to look a little green in places. Maximum temperature 69 on the 10th, minimum 21 on the 8th, wind velocity average 7.9, precipitation .33.

Ardmore, Report for week ending April 14:

Maximum temperature for the week 76; minimum 28; precipitation .61 ". Precipitation was in the form of rain-the first in many months.

Seeding of all plats of oats, wheat and barley was finished during the week. On twenty-five acre field of oats remains to be seeded. Spring is late, and seeding is being done later than any year since this station has been in operation. Four isolated plats of corn were planted today for a test of hardiness in cooperation with the Corn Investigation Office.

Work on the buildings for the live stock is progressing satisfactorily. Considerable concrete work was done this week. A carload of steel pipe was unloaded during the week and will be installed for pumping water from Hat Creek a distance of 2900 feet.

Bellefourche, Report for week ending April 14:

Maximum 70, minimum 25, precipitation .80". All plats to be seeded to spring grain were staked afternoon of the fourteenth. The soil is in excellent condition for planting. Even the spring plowing worked down to form a good seed bed.

Winter rye came through the winter in excellent condition, but some of the winter wheat died. The best stand of winter wheat is found on some of the plats where the wheat was seeded late in the fall and did not come up until this spring.

Big Springs, Report for week ending April 14:

The four and one-half months drouth was broken by a good shower that fell on Tuesday night. Dr. Cook and C. S. Scofield of Washington, D. C., visited the station on Tuesday. E. F. Chilcott of Woodward, was here on the same date and remained over until Wednesday night. Maximum temperature for the week 77, minimum 36, wind velocity 8.2 miles, evaporation 1.92" precipitation .81 of an inch. The shower that fell Tuesday night was sufficient to wet the soil deep enough to permit spring plowing to proceed. The latter part of the week was spent in preparing and working down plats for planting. It is planned to commence planting the variety plats, in the "Date of Planting Tests", Monday, as planned for the different crops. Considerable early planting is being done by the farmers, especially crops for early feed.

Colby, Report for week ending April 14:

The past week has been very variable. There has been some very warm weather and some has been quite cold. A quarter of an inch of rain fell Wednesday and a little fell this morning. Today it is threatening rain, or snow rather, as it is too cold for rain. The spring grains on the M. C. A. plats and on the disked corn ground came up the fore part of the week. They have started on the other plats also but are coming very slowly. The condition of the winter wheat remains unchanged; with favorable weather conditions some sort of a stand will be obtained, but it is difficult to tell at this time how much of it rain will bring up as much of it is covered by drifted soil to varying depths.

The week was spent in soil sampling. Samples to a depth of six feet were taken on plats 574 A, C, D; 575 C, D; 257 A, and MC. W. Wheat A to D and H to Q. On the plats cropped last year there is practically no moisture except on stubble where the soil is moist to a depth of twelve to fifteen inches. Except at the surface the plats fallow last year are wet the entire depth of six feet.

Weather: Maximum temperature 82, minimum 14, average hourly wind velocity (2') 9.6 mi. (8') 12.9 mi., evaporation 1.198", precipitation .26"

Dalhart, Report for week ending April 14:

Weather during the past week has been very dry and cool with considerable wind. All of the spring plowing has been finished but there is not enough moisture in the soil to germinate seed and the seed will have to be delayed until it rains. Only a very small per cent of small grains seeded March 21st, have germinated and the prosects for a stand of these crops are discouraging. The native grasses show no signs of any growth and the trees have not yet begun to bud out. This would indicate that the season is about two weeks later than last year. Maximum temperature for the week 77, minimum 38, two attempts at trying to rain has netted .31"

Dickinson, Report for week ending April 14:

The first half of the week was fair and much work was done on the land. Several thousand acres of wheat were sown south east of Dickinson. The rotation wheat plats were seeded on the 12th. About four inches of snow fell on the 13th making further seeding during the week impossible. Some early vegetables were also sown during the week. Maximum temperature for the week 62, minimum for the week 18, total precipitation for the week .40".

Edgeley, Report for week ending April 14:

The week has been for the most part cool and alternately fair and cloudy, with one light snow, making only a trace of precipitation.

The ground has generally been frozen too hard for much field work in the forenoon. Plowing on the D. L. A. plats was begun Tuesday and all of those on the station to be seeded to small grains were finished Wednesday. All of the fall and spring plowed plats on the station were harrowed Wednesday. Thursday all the corn stubble plats and 12 A and 10 D were disked, and all of the fallows, 10 D, 12 A, and 42 E were spring tooth harrowed. The fertilizer plats were harrowed yesterday. No work has yet been done on '9', and no seeding has been done on the station. A portion of the plats were staked out for seeding yesterday. Maximum temperature 62', minimum 20', precipitation-trace.

Havre, Report for week ending April 14:

The temperature have been about normal for the past week with a mean maximum of 56, actual maximum of 68, mean minimum of 33 and an actual minimum of 31. Precipitation for the week amounted to .18 which fell in the form of rain.

The breaking of plats to be used in the "Breaking Test" was completed and plowing started on the plats on rotations for seeding wheat oats and barley. Commercial fields are being disked in preparation for seeding oats and barley.

The indications are that there will be some winter killing of winter wheat but that this will be more uniformly distributed over the plats than it was last season. Alfalfa, sweet clover and brome grass have all withstood the winter very well.

Hays, Report for week ending April 14:

Windy changeable weather has prevailed. Drouth broken by two showers, which totaled .52, early in the week. Heavy frosts two nights.

Wheat, not already dead, is beginning to green up. Season very backward on account of drouth. Although the rain was not heavy enough to make ideal conditions for seeding, it has made it possible to prepare a fair seed bed on most plats and grain will be seeded first of next week. Soil moisture work has been in progress most of the week.

Hettinger, Report for week ending April 14:

Some work has been done in the fields this week and some farmers have seeded quite an acreage. A 2-inch fall of snow and a slow drizzle is now keeping us out of the fields.

It is probable that the wheat acreage will be considerably increased this year. Lack of good seed is keeping many sowing as much as they desire. Winter wheat is generally very poor this year although I have seen a few fair fields.

Huntley, Report for week ending April 14:

Bright, windy days during most of the week have dried the ground so light field work was possible. Alfalfa, brome grass and sweet clover plats to be used for pasturing experiments were harrowed today. Most of the week has been spent in cleaning up the fields, scattering prairie-dog poison and preparing seed for planting.

Mr. J. W. McLane of the Office of Biophysical Investigations arrived at the station Monday. He will have charge of the water requirement work which is to be carried on here.

Maximum temperature 74, minimum 32, precipitation .12

Judith Basin, Report for week ending April 14:

The past winter is said to have been unusually long, cold and windy, and a great deal of snow fell. The latter is almost gone at present, however, but it is too early to tell how much damage, if any, has been done to winter wheat and rye. The minimum temperature for the winter was -37. If the weather is favorable, field work should start within a week. The last week was characterized by unsettled and changeable weather, and was quite windy at times; the maximum temperature for the week was 62, the minimum 27, and the precipitation .21 inches.

Mandan, Report for week ending April 14:

The weather during the past week has been favorable for field operations. Spring plowing for small grains has been finished. Seeding will begin the fore part of the week if the weather continued favorable.

Mr. Cole visited the station from the eleventh to the thirteenth. Mr. J. V. Hoffman, Examiner of the Forest Service spent the thirteenth and fourteenth here.

We plan beginning shipment of the shelterbelt nursery stock the fore part of the coming week.

Maximum temperature 65, minimum 23, precipitation .01"

North Platte, Report for week ending April 14:

Weather continues dry, cool and windy. April precipitation to date has been only a trace.

Small grain seeding on the station will be about completed during the week. A few plants of winter wheat on the bench may have to be seeded to spring grain but are being left as long as possible in the hope that moisture will come and a part of a stand of winter wheat will come through. Press reports indicate that at best 70% of the winter wheat in the state is dead. Rye in this section is in good condition.

Scottsbluff, Report for week ending April 14:

The weather during the week has been warm, and favorable to crop growth. Heavy precipitation occurred, eliminating the danger of soil blowing for the present and putting the soil in a good workable condition.

Spring wheat and brome grass were sown the day after a rain of .73 of an inch and the soil was in excellent shape for seeding. A good stand of spring wheat ought to be secured.

The field pea plats have been prepared for seeding and the oat plats are being disked.

Maximum temperature 79 on the 9th, minimum 25 on the 8th, mean temperature 48, precipitation 1.02", evaporation 1.04", average hourly wind velocity, 6.0 miles.

Sheridan, Report for week ending April 14:

A team was started at breaking on the 9th and has now finished all of the breaking that will be done this spring. Two days disking has been done, but snow and rain is now keeping us out of the field.

The weather instruments were received and installed during the week, and the taking of weather data was begun.

Most of the seed for spring seeding is now on hand but it is doubtful whether any of it can be in the ground before the 21st, as the soil seems to be drying out very slowly.

John S. Cole visited the station on the 7th and 8th, and John M. Stephens is now here.

Tucumcari, Report for week ending April 14:

Average hourly wind velocity for week 6.1 miles. The prevailing wind direction for week was easterly and for over half the week the sky was either partly cloudy or cloudy. Max. temperature 75 on the 9th, min. temperature 26 on the 8th, precipitation .23 on the 12th and a trace on the 13th, evaporation 1.665 inches.

Tucumcari, Report for week ending April 14: (continued)

The week on the whole was very favorable for stock but as yet we have not had sufficient precipitation to cause us to consider preparation of the ground for planting.

The little shower on the 13th has started grass to coming out. Peach trees on the Station have blossomed and over 50% of the blooms have been killed by frost. Plums are in blossom and other fruit buds are swelling. Willows and some of the earlier varieties of cottonwoods and poplars on the station are in leaf.

The principle work of the week has consisted of watering trees and shrubbery about the grounds, of digging holes for more trees about the buildings, of making trenches for tree planting in a small wind break west of the buildings, of marking off rows in pig pastures with a two row planter preparatory to planting with a lister, and of replanting a 1-acre pig pasture of each white sweet clover and alfalfa.

Mr. G. A. Pearson of the Forestry Service and Mr. E. F. Chilcott of this Office visited the station on the 7th, and working plans were drawn up for a 5.24-acre test block of trees. If rain comes before April 30 in sufficient quantity to put the ground in shape these trees will be set out in the block this year. If rain does not come the trees will be set out in nursery rows and watered this year and set out in the block next year.

Williston, Report for week ending April 14:

Weather for the past week has been windy and raw, maximum temperature 60 on the 10th, and minimum 20 on the 11th. Precipitation .09 inch.

Field work is in progress generally in this section, and some plowing has already been done on the drier places. Seeding was begun today on the cereal varieties. The dry land plats are all prepared, and will be seeded next week.

NOTE:

The reduced photographic prints of the contour map of the United States with the stations of this Office indicated thereon, has been mailed to each Field Station of this Office. There has been considerable delay in securing these maps, as the supply of bromide paper of the photographic laboratory was exhausted and there has been considerable difficulty in obtaining a new supply.

NOTE:

The attention of the field men of this office is invited to paragraph 89-d of the "Fiscal Regulations", which should be observed in preparing expense vouchers, covering travel and which reads as follows:

> "Travel accounts must provide a detailed statement of travel performed, show starting point, date and hour of departure from and arrival at official headquarters, temporary station, and each point visited, and, when travel is continuous from one month to another, the location of the traveler at the close of the preceding month. Transportation or subsistence furnished without charge to the department should be indicated, and all leave taken should be noted. All items of expense charged must show the locality and State in which incurred; charges for separate meals must show the cities or towns in which same were obtained. An account covering a specific trip may be rendered at its conclusion".

Particular attention is invited to that portion of the above paragraph which has been underscored.

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WEEKLY STATION REPORTS

OF THE OFFICE OF

DRY LAND AGRICULTURE INVESTIGATIONS

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE.

APRIL 28, 1917.

REPORT FOR WEEK ENDING APRIL 21, 1917

Akron, Report for week ending April 21:

The oat and barley varieties were sown during the week. Only three days during the week were favorable for field work. Some of the spring wheat on the rotations is coming up. Winter wheat is starting growth so slowly that it is still impossible to estimate the stand on a part of the plats. Winter wheat on corn ground that was unprotected by weeds or stalks is dead. Wheat was badly damaged by soil blowing the night of April 18th. 2½ inches of snow fell on the 19th.

Maximum temperature 88 on the 18th, minimum 22 on the 20th, precipitation 0.5 inches.

Archer, Report for week ending April 21:

The first half of the week was ideal for field work. Spring wheat, oats and barley plats were plowed or disked. The fall plowed and fallow plats for other crops were single disked. The ground works up in fine condition, with optimum moisture for seeding. The winter wheat shows a very slow growth, due to the continued cold weather, and it is yet impossible to tell what the stand will be. The winter rye is doing well, having withstood the winter and soil blowing.

About three inches of snow fell on the 19th, but it was badly drifted and the open fields were left almost bare. The evaporation tank was drifted full and entirely covered with snow. Temperatures: Max. 67 on the 18th; min. 24 on the 20th; means 51 and 29. Average wind velocity 12.4

Ardmore, Report for week ending April 21:

Maximum temperature for the week 71, minimum 28, precipitation 1.09 inches. Rain fell during five days of the week and very lettle field work was possible. Spring conditions have been very unfavorable for the seeding of small grains, and many farmers who intended to seed wheat will not do so. The season is fully two weeks later than normal. Native vegetation has not started growth. There is plenty of moisture in the surface soil to start plant growth, but the subsoil is dry.

Amarillo, Report for week ending April 21:

No change in the climatic "Bill of Fare" of wind, dust and drouth has yet been made. A small shower of .09 inches of rain on the 18th was the only break in the program and vegetation is making little headway in growth. However the crops on the plats are holding their own fairly well and some of the seed in the spring grain plats has sprouted and is emerging since the small showers of last week so that it is not deemed advisable or necessary to do any reseeding. The showing is most backward on the Summer Tilled and Green Manure plats and also on the Fall plowed plats of Rots. #1 to #9, because of the dry condition of the surface soil that has obtained. Winter wheat is dying out in spots in the 4-yr. rots, but is holding up pretty well in the C. C. series where it is beginning to form shoots. The rye is jointing. Peas are not as yet up with any sort of stand. The station is fairly free from weeds, though a few thistles are putting in their appearance.

Soil sampling in the W. Wheat plats has been done to a depth of 10 feet but field work is pretty much at a standstill on the station as well as over the country generally. On a trip to the East of here it was observed that some fields of winter wheat are holding up well. Much of the wheat is being pastured at present. In case the drouth continues this pasturing will doubtless be continued to the limit and the land later on be put into sorghum and forage crops. Very little in any spring small grain seeding will be done, the farmers counting more on the Grain Sorghums and feed crops for this season. Seed of all kinds seem to be scarce and at a premium. We have had calls for seed here at the station in amounts considerably greater than could be supplied.

Weather for the week was-maximum temperature 84 on the 17th, minimum 31 on the 20th, hourly wind 12 miles, precipitation .09 inches, evaporation 1.814 inches.

Bellefourche, Report for week ending April 21:

A snow storm on the 15th followed by cool weather for several days stopped field work until the afternoon of the 20th. No field work was done for the Dry Land Office. Very little spring work has been done in this vicinity. A few farmers have started seeding, but the majority have not prepared their land for seeding. At the station, less spring work has been finished at this date, than at the corresponding time any season since the station has been established.

Maximum temperature 75, minimum 25, precipitation .24".

Big Springs, Report for week ending April 21:

Maximum temperature for the week 88, minimum 38, wind velocity 10.8 miles, evaporation 3.23 inches, precipitation .15. In the southern portion and eastern portion of the county the rainfall was much heavier than at the station. In some districts the rain was accompanied by severe hail which did some damage to roofs of buildings and tender garden stuff.

The first planting of cotton in the date of planting tests was made on Monday. Dwarf milo and dwarf kafir, also red amber sorghum and sumac were planted in similar tests. Quite a lot of planting was done by farmers in sections of the county, but many of them will wait for warmer weather and better moisture conditions. Part of the field devoted to planting the main feed crop was partially prepared during the week. Grass in the pastures is beginning to grow and the native trees are about out in full leaf. The winter wheat in the C. C. series is heading out, but will be short. The listed plat seems to be holding out better than the fallow plat at the present time.

Colby, Report for week ending April 21:

The nine months drouth was broken Thursday by almost an inch of precipitation which fell in the form of rain and snow. The snow and rain were accompanied by a high wind but the snow did not drift badly because it was very wet. On Tuesday and Wednesday exceedingly high winds caused considerable soil blowing. Many of the stubble plats have accumulated from one to four inches of dirt from the corn ground and plowed plats. The winter wheat plats will have to be seeded to some spring crop, most of them, as the prospects of a suitable stand are very poor. It is planned to begin preparing the ground for corn the first of the coming week.

Mr. Grace visited the station yesterday. Weather for the week: Maximum temperature 85, minimum 31, evaporation .932", precipitation .87", average hourly wind velocity (8') 17.5, (2') 11.8 mi.

Dalhart, Report for week ending April 21:

The weather during the past week has been very dry and windy. The ground is very dry and it is practically impossible to do any field work. Only a small per cent of the spring grains have germinated and the winter wheat and winter rye crops are invisible. The prospects of a small grain crop of any kind are very slim. Bid for the construction of the dairy buildings have been advertised for and will be opened on April 30th. Mr. Parks of the dairy division visited the station today. Maximum temperature for the week 82, minimum 29, precipitation none.

Dickinson, Report for week ending April 21:

A snow of one inch checked field operations again so that it is now very probable that quite a goodly proportion of the seeding in this section will be late again this year. The land is already so wet that only a small precipitation makes field work impossible. This condition however has not prevailed over much of the state east of the Missouri river according to reports from travelers going through. Wheat seeding on the station has been completed except some increase for seed purposes. Most of the land for oats and barley has been prepared and seeding will be pushed as soon as conditions are favorable. Red clover in Rot. 11 was very badly winter killed. Maximum temperature for the week 61, minimum 25, total precipitation for the week .10 inches.

Edgeley, Report for week ending April 21:

Two rain and snow storms, one on the 16th and the other on the 19th, tended to prevent field work on the station, with the exception of plowing. Plowing was begun on the plats on Nine, Wednesday afternoon, and all to be seeded to small grain were finished Thursday. All of the fall and green manure plats were spring tooth harrowed Wednesday, all of the fall and spring plowed plats harrowed Friday, and the corn stubble plats disked. The rotation wheat and oats on the station were seeded Saturday, also the two plats of peas for green manure. The soil is in good condition and works nicely. Brome grass, alfalfa, and timothy are getting well started, but sweet clover and red clover have not yet shown any indications of growth. Maximum temperature 59, minimum 17, precipitation 84 inches.

Garden City, Report for week ending April 14:

The drought was effectively broken on the 11th with a rainfall of .74". This is the first precipitation to speak of that we have had since the 14th of last August. The rain fell slowly and there was practically no run-off. Seeding of small grains will be done now as soon as the seed bed can be prepared. The long dry spell we have had will result in a far greater acreage seeded to the sorghum crops than would have been the case had rain come earlier; as some of the wheat land would have been seeded to oats and barley. Maximum temperature 81, minimum 31, evaporation 1.644", precipitation 1.02".

Garden City, Report for week ending April 21:

The week started out extremely windy, and the 17th and 18th, we had severe dust storms which practically stopped field work. On the evening of the 18th, .90" of precipitation occurred in about forty five minutes, most of which ran off. This rain was very local, and in Garden City 1,55" fell. Dust storms and rain interfered considerably with field work this week, but seeding of all small grain plats is being done as rapidly as possible. All of the spring wheat, and practically all of the winter grain plats were seeded this week. The latter plats were seeded to spring wheat. The remainder of the small grain seeding will be finished Monday if the weather permits.

Mr. Grace, traveling field assistant, visited the station on the 17th. Maximum temperature 85, minimum 33, evaporation 1.768", precipitation .97". Our precipitation for this month is .59" above the nine year average.

Havre, Report for week ending April 21:

The week has in general been favorable for station work. Snow on Sunday night and Monday delayed field work until Thursday, but the last three days have been fair. Grass and winter wheat are beginning growth. Plowing on the plats is now completed and the cultivation for seeding nearly completed. With $\frac{1}{2}$ days more work the seeding of spring grains will be started. The general opinion among farmers is that winter wheat has survived the winter in good condition. There has been some killing on the station, but from present appearances this killing will not be as ununiform as it was last season. Some of the varieties seem to have almost entirely killed. The sale of tractors in Havre-especially small ones-has been much greater this spring than usual. The station have purchased an International 10-20 Titan which will be used in handling commercial fields. While no soil samples have been taken as yet the general indications are that the soils carry a larger percentage of moisture than it did this time last season. Weather conditions in April while later than last year, have been more favorable, than they were last. Conditions were such last fall that an unusually large area was fall plowed. Spring seeding is making good headway now.

Hays, Report for week ending April 21:

Showers during the previous week made it possible to prepare fairly good seedbeds on most plats to be seeded to spring grains. All spring grains were seeded Tuesday and Wednesday. On account of sickness among the workmen on the Station, (there being as many as six off at one time), but little field work other than the seeding was done.

Maximum temperature for the week 89, minimum 36, precipitation the total of several little showers, .50. Mr. O. J. Grace visited our station Thursday.

Hettinger, Report for week ending April 21:

Two small flurries of snow interfered with work this week but most of the plowing for small grains is completed and sowing starts today. The soil is in fine shape to work and the cool damp days are keeping the plowed ground in ideal condition. The people of this community held a meeting the other evening for the purpose of making plans along the food production line. The county agent is visiting 15 farmers every day and all available land is being brought into shape for gardening. Personally I have been asked to head a committee to take charge of all the children in the community for the purpose of organizing a Boys' and Girls' Gardening and Canning Club for the summer. All the citizens voluntarily take turns in sentry duty about the mill and elevators every night. It seems that war can at least do one thing, that is awaken the people to the fact that we are apt to work too independently under normal conditions.

Maximum for week 70, minimum 24, precipitation .22"

Huntley, Report for week ending April 21:

Because of the snow storm last Sunday, field work was impossible during the past week; good drying weather has prevailed the last few days and it is hoped we may be able to start next week. The season here is decidedly backward, practically no spring grain has been sown in the neighborhood and no spring plowing has been attempted. Winter wheat and rye are making a good growth and on plats where winter killing was the most severe the stools are spreading out and a fairly satisfactory stand will result. Sweet clover appears to be entirely killed but alfalfa and brome grass are making good growth.

Mr. J. M. Stephens spent Thursday at the station. Temperature for the week, Maximum 64, min. 21, precipitation .15"

Judith Basin, Report for week ending April 21:

The past week has been cool, cloudy, and windy at times. Maximum temperature 56, minimum 19, precipitation .27 inches. The winter wheat now appears to be practically killed out, and the winter wheat rotations will have to be seeded with spring wheat. Mr. Peterson, the County agent for Fergus County, claims that this condition is general throughout the Judith Basin. A few young apple trees on the station also have been killed. No field work has been done yet, but a few warm days should put the fields in condition to be worked.

Mandan, Report for week ending April 21:

The station work was delayed for four days, due to a snowfall of from four to five inches, having a moisture equivalent of .74" on the 16th. The snow, however, soon disappeared, leaving the ground in excellent condition for seeding. The first seeding of the season consisted of a Date-of-seeding-Flax on the 19th. The wheat plats are being seeded at present. The weather and soil conditions are ideal for field operations. Nursery stock shipments for cooperative shelterbelts were started on the 19th. Plantings of nursery stock are being made daily under favorable conditions for growth. Max. temp. 63, min. 20, precipitation .83".

North Platte, Report for week ending April 21:

The dry spell has been broken. The week opened with threatening weather. The forenoons were cloudy and some drizzling rain fell. This was of little consequence until Thursday when a storm of high wind, rain, sleet and snow raged throughout the day. The gauge on the bench measured .70 inch precipitation. On the table where the exposure to the wind is greater only half this amount was caught. The week closes with fair weather and most of the snow is melted. Spring grains seeded the first week of the month are not all up yet. A part of this station's contribution to prevent the threatened shortage of food supplies will be the planting of four acres each of beans and potatoes.

Scottsbluff, Report for week ending April 21:

Rain and snow during the week, and the 1.02 inches of precipitation last week have put the soil in excellent condition. Unless the wind caused damage, a good stand of all the small spring grains is practically insured. The spring wheat seeded 10 days ago has apparently all germinated and will be up in a short time. Rye and the remaining winter wheat are making good growth. Stormy weather permitted of very little field work. All the barley and oat plats are prepared for seeding and will be seeded the first of next week.

Weather records for the week: Maximum temperature , 70 on the 21st, minimum 30 on the 20th, mean 43, precipitation .67", evaporation .65". Mr. W. W. Burr visited the station on the 18th and 19th. Mr. Jacobson left for Idaho on the 16th to take up his work as field agent for the Bureau of Crop Estimates.

Sheridan, Report for week ending April 21:

Preparation of land for spring seeding has been progressing all of the week. The fore part of the week the soil was slightly wet to work, but due to the late season, and prospect of bad weather we continued working. All of the rotation field has been disked twice and half of it has been harrowed once and is now being dragged with a planker. This half is now ready for staking and seeding. During the week most of the permanent corners, have been located and placed, on all plat land to be used this season. At the present time the field is in good shape to be worked down, and with continued good weather, a good seed bed will be prepared for spring grains. There seems to be an abundance of moisture in the soil although no soil sampling has been done yet. The weather instruments have been placed, and data is being taken from all but the evaporation tank which is giving trouble. John M. Stephens spent a few days during the past week visiting the station.

Williston, Report for week ending April 21:

Rain and snow occurred early in the week, bringing .31" precipitation, and retarding field work. Maximum temperature 64, minimum 23. Winds less than average up to this time.

Seeding of wheat and oats on dry land plats was finished today, barley will be seeded the first of the coming week. The cereal nursery is practically half planted, and the cereal varieties field, with the exception of flaxes, is seeded. Spring work is general now in this part of the state, and probably 10 per cent of the seed is in the ground. The acreage of wheat may be a trifle greater than last year, but the flax acreage will be at least 50 per cent larger. Soil is in excellent condition. No soil samples have been taken yet because of frost below the second foot.

Woodward, Report for week ending April 21:

The spring drought was broken on the 19th with a rain of .52" which will tide the growing crops over for some time. This spring has been accompanied by high winds and very little rainfall, the total since January being .96 inches. Rye sown on roads and fields to prevent blowing is beginning to head. It ranges in height from 10 inches to 3 feet. Winter wheat is looking good and is growing quite rapidly since the rain of April 19. Spring wheat and oats sown Feb. 23 and 24 are growing nicely. Field peas planted March 2d are up a couple of inches and a good stand secured. Corn was planted on the rotations and continuous cropping series April 16th and is sprouting at this time. Sweet clover was reseeded on the plats that were sown last fall. The clover that was planted at that time winter killed. Mr. W. F. Fletcher arrived on the 12th of April and has taken charge of the Horticultural work on the station. Most of the planting of ornamentals and replanting of some fruit trees is finished. From the present indications we will have some fruit here this year. The tent caterpillars are thick on wild plumb trees and in a great many orchards in this section and if some measures of control are not taken up soon they will destroy the crop of fruit for some of the farmers. Many of the trees are defoliated at this time and the caterpillars have begun to migrate. The caterpillar eggs were gathered off the trees on the station last fall and there has been only three nests hatch on the station this spring and they have been destroyed. Weather record: average hourly wind velocity for the week is 15.2 miles, maximum tem-71, minimum 51 evaporation 1.59C.

NOTE:

The following memorandum was issued by Dr. K. L. Kellerman acting chief of the Bureau of Plant Industry, under date of April 17, 1917.

> "The Bureau of Entomology is planning to conduct an insect census throughout the present season, and will cooperate in this work with the Entomologists throughout the country. As many of the men of this Bureau notice insect depredations from time to time in various parts of the country, it is desired that such conditions be noted and reported as fully as possible to the Bureau of Entomology, through this office. The Bureau of Entomology will tabulate the information received from all sources and as occasion demands will issue brief statements regarding desirable methods of insect control for distribution in infected regions."

The field men of this office are requested to cooperate in this matter with the Bureau of Entomology in the manner indicated.